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10 30
atgaaaaagctgataaccgcagacgacatcacagcgattgtctctgtg
M K K L I T A D D I T A I V S V

50 70 90
accgatcctcaatacgcgccagacgggtaccggtgccgcatatgtaaaa
T D P Q Y A P D G T R A A Y V K

110 130
tcacaagtaaatacaagagaaagattcgtatacatcaaatatatggatc
S Q V N Q E K . D S Y T S N I W I

150 170 190
tatgaaacgaaaacgggaggatctgttccttggacacatggagaaaag
Y E T K T G G S V P W T H G E K

210 230
cgaagcaccgacccaagatgggtctccggacgggacgacgcttgccctt
R S T D P R W S P D G R T L A F

250 270 2
atttctgatcgagaaggcgatgcggcacagctttatatcatgagcact
I S D R E G D A A Q L Y I M S T

90 310 330
gaaggcgggagaagcaagaaaactgactgatatcccatatggcgtgtca
E G G E A R K L T D I P Y G V S

350 370
aagccgctatgggtccccggacgggtgaatcgattctgggtcactatcagt
K P L W S P D G E S I L V T I S

390 410 430
ttgggagagggggaaagcattgatgaccgagaaaaaacagagcaggac
L G E G E S I D D R E K T E Q , D

450 470
agctatgaacctgttgaagtgcaaggcctctcctacaaacgggacggc
S Y E P V E V Q G L S Y K R D G

490 510 5
aaagggtgacgagaggtgcgtatgccagcttgtgcttgtcagcgta
K G L T R G A Y A Q L V L V S V

30 550 570
aagtcgggtgagatgaaagagctgacaagtcacaaagctgatcatgggt
K S G E M K E L T S H K A D H G

FIG._1A-1

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590 610
gatcctgctttttctcctgacggcaaattggcttggttttctcagctaatt
D P A F S P D G K W L V F S A N

630 650 670
ttaactgaaacagatgatgccagcaagccgcatgatgtttacataatg
L T E T D D A S K P H D V Y I M

FIG._1A-2

690 710
tcactggagtcctggagatcttaagcagggttacacctcatcgcggtca
S L E S G D L K Q V T P H R G S

730 750 7
ttcggatcaagctcattttcaccagacggaagggtatcttgctttgctt
F G S S S F S P D G R Y L A L L

70 790 810
ggaaatgaaaaggaatataagaatgctacgctctcaaaggcgtggctc
G N E K E Y K N A T L S K A W L

830 850
tatgatatcgaacaaggccgcctcacatgtcttactgagatgctggac
Y D I E Q G R L T C L T E M L D

870 890 910
gttcatttagcggatgcgctgattggagattcattgatcggtgggtgct
V H L A D A L I G D S L I G G A

930 950
gaacagcgccccgatttggaacaaaggacagccaagggttttatgtcatc
E Q R P I W T K D S Q G F Y V I

970 990 10
ggcacagatcaaggcagtagcggcatctattatatttcgattgaaggc
G T D Q G S T G I Y Y I S I E G

10 1030 1050
cttgtgtatccgattcgtctggaaaaagagtacatcaatagcttttct
L V Y P I R L E K E Y I N S F S

1070 1090
ctttcacctgatgaacagcactttattgccagtgtagacaaagccggac
L S P D E Q H F I A S V T K P D

FIG._1B-1

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1110 1130 1150
agaccgagtgagctttacagtatcccgcttggacaggaagagaaacag
R P S E L Y S I P L G Q E E K Q

1170 1190
ctgactggcgcggaatgacaagtttgtcagggagcatacgaatatcaata
L T G A N D K F V R E H T I S I

1210 1230 12
cctgaagagattcaatatgctacagaagacggcggtgatgggtgaacggc
P E E I Q Y A T E D G V M V N G

50 1270 1290
tggctgatgaggcctgcacaaatggaaggtgagacaacatatccactt
W L M R P A Q M E G E T T Y P L

1310 1330
attcttaacatacacggcggtccgcatatgatgtacggacatacatat
I L N I H G G P H M M Y G H T Y

1350 1370 1390
tttcatgagtttcagggtgctggcgggcgaaaggatacgcggtcgtttat
F H E F Q V L A A K G Y A V V Y

FIG._1B-2

1410 1430
atcaatccgagaggaagccacggctacgggcaggaatttgtgaatgcg
I N P R G S H G Y G Q E F V N A

1450 1470 14
gtcagaggagattatgggggaaaggattatgacgatgtgatgcaggct
V R G D Y G G K D Y D D V M Q A

90 1510 1530
gtggatgaggctatcaaacgagatccgcatattgatcctaagcggctc
V D E A I K R D P H I D P K R L

1550 1570
gggtgtcacgggcggaagctacggagggttttatgaccaactggatcgtc
G V T G G S Y G G F M T N W I V

1590 1610 1630
gggcagacgaaccgcttttaaagctgccgttaccagcgctcgatatca
G Q T N R F K A A V T Q R S I S

FIG._1C-1

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1650 1670
aattggatcagctttcacggcgctcagtgatcgcggtattttctttaca
N W I S F H G V S D I G Y F F T

1690 1710 17
gactggcagcttgagcatgacatgtttgaggacacagaaaagctctgg
D W Q L E H D M F E D T E K L W

30 1750 1770
gaccggtctcctttaaaatacgcagcaaacgtggagacaccgcttttg
D R S P L K Y . A A N V E T P L L

1790 1810
atactgcatggcgagcgggatgaccgatgcccgatcgagcagggcggag
I L H G E R D D R C P I E Q A E

1830 1850 1870
cagctgtttatcgctctgaaaaaatgggcaaggaaaccaagcttgtc
Q L F I A L K K M G K E T K L V

1890 1910
cgttttccgaatgcatcgcacatttatcacgcaccggacaccaaga
R F P N A S H N L S R T G H P R

1930 1950 19
cagcggatcaagcgctgaattatatcagctcatggtttgatcaacat
Q R I K R L N Y I S S W F D Q H

70
ctc
L

FIG._1C-2

	450	460	470	480	490	499
adap2_yeast	DSMENRLYFISTRKSS	TERHYYID-LRSPNEI	IEVTD	TSEDGVYDV	SFSSGRRFGL--	L
	: : :	:	:	:	: : :	:
YUXL	DIEQRLTCLTEMLDV	HLADALIGDSL	IGGAEQRP	IWKDSQGF	YVIGTDQGST-GI	YI
	280	290	300	310	320	330

FIG. 2A

dap2_yeast
TYKGPVYPYQKIVDFHSRKA EKCDKGNVLGKS LYHLEKNEVLT KILEDYAVPR-KSFREL
: : | | : : : : | : : : : : : : : : :
SIEGLVPYIRLEKEYINSFSLSPDEQHFIASVTKPDRPSEL-----YSIPLGQE EKQL
340 350 360 370 380

```

560      dap2_yeast      NLGDEFGKD-----ILVNSYEILPNDFEETLSDHYPVFFFAFGPNSQ
      : : | : | : : : | : : : | : : : | : : : | : : :
      TGANDKFVREHTISIP EEIQYATEDGVMVNGWLMRPAQMEGETT--YPLILNIHGGPH-M
      390      400      410      420      430      440

```

dap2_yeast
QVVKTFSGFNEVVASQLNAIVVVVDGRGTGFKGQDFSLVRDRLGDYEARDQISAAS-L
:
MYGHTYFHFF-QVLAAKGYA-VVYINPRGSHGYGEFVNVRGDIYGGKDYYDDVMQAVDEA

670 680 690 700 710 720
 ↕
 YGSLTFVDPQKISLFGWSYGGYLTLKLEKDGGRHFKYGMSPVTDWRFYDSVYTERYM
 :||:::| |||::| : : : || :: : ::| : :| | :
 IKRDPHIDPKRLGVTGSGYGGFMTNWIWGQTN--RFKAAVTQRSISINWISEFHGVSDIGYF
 510 520 530 540 550

adap2_yeast
HTP-QENFDGYVES-SVHNVTALAAQNR-----FLLMHGTGDDNVHFQNSLKFLDLLDLNG
| | : | : : : | | : | : | | : : : | |
FTDWQLEHDMFEDTEKLWDRSPKYYAANVETPLLILHGERDDRCPIEQAEQLFIALKKMKG
560 570 580 590 600 610

780 790 800 810
 V
 VAD2_YEAST VENYDVHVFPDSHSIRYHNANVIVEDKLLDWAKRAFDGQFVK
 YU1 | : | | : : | : :
 YU2 KETKLVR-FPNASHNLSRTGHPRQRIKRLNYISSWFDQHL
 620 630 640 650

FIG. 2B

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```

380      390      400      410      420      430      439
yux1.bsuep QEEKLTGANDKVFVREHTISIPEEIQYATEDGMVNVGWLMPAQMEGETTYPLILNIHGG
YTMA      MIVEKRRFPSPSQHVRLYTICYLSNGLRVKGLLAEPAE-PGQ--YDGFYLRGG
          10      20      30      40      50

440      450      460      470      480      490
yux1.bsuep PHMMYGHTYFHEFQVLAAGYAVVYINPRGSHG-YGQEFVNAVRGDYGGKDYDDVMQAVD
YTMA      IKSVMGVRPGRIIQFASQGFVVFAPFYRGNQGGEGNE-----DFAGEDREDAFSAF-
          60      70      80      90      100

500      510      520      530      540      550
yux1.bsuep EAIKRDPHIDPKRLGVTGSGYGGFMTNWIIVGQTNRFKAAVQTSISNWI$FHHGVSDIGYF
YTMA      RLLQQHPNVKKDRIHIFGFSRGGIM-----GMLTAIEMGGQAA$FVSW---GGVSDMILT
          110     120 ↑Ser      130      140      150

560      570      580      590      600
yux1.bsuep FTDWQLEHDMFEDT-----EKLWDRSPLKYAANVETPPLLILHGERDDRCPIEQAE
YTMA      YEERQDLRRMMKRVIGGTPKKVPEEYQW-RTPFDQVNKIAPVLLIHGEKDQNVSIQHSY
          160     170     180     190     200     210
                                   ↑Asp

610      620      630      640      650
yux1.bsuep QLFIALKKMGKETKLVRFNPNASHNLSRTGHPQRQRIKRLNYISSWFDQHL
YTMA      LLEEKQLKHPVETWYYSTFTHYFP----PKNRRRIVRQLTQWMKNR
          220     230     240     250
                                   ↑His

```

FIG.-3

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yuxl.bsupep 410 420 430 440 450 460
PEEIQYATEDGVMVNGWLMRPAQMEGETTYPLILNIHGGPHMYGHTYFFHEFQVLAAGY
YITV 10 20 30 40 50
MIQIENQTVSGIPFLHIVKEENRHRRAVPLVIFIHGFTSAKE-HN-LHIAYLAEKGF

yuxl.bsupep 470 480 490 500 510
AVVYINPRGSHGYGQEFVNAVVRGDYGGKDYDDVMQAVDEA-----IKRDPHIDPKRLGV
YITV 60 70 80 90 100 110
RAVL--PEALH-HGERGEEMAVEELAGHFWDIVLNEIEEIGVLKNHFEKEGLIDGGRIGL

yuxl.bsupep 520 530 540 550 560 570
TGGSYGGFMTNWIVGQTNRFKAAVTORSISNWISFHVSDIGYFFTDWQLEHDMFED-TE
YITV 120 130 140 150 160 170
AGTSMGGITTLGALTAYDWIKAGVSLMGSPNYVELFQ-QQIDHI-QSQGIEIDVPPEEKVQ
Ser↑

yuxl.bsupep 580 590 600 610 620
KLWDRSPLKYAANV-----ETPLILHGERDDRCPIEQAEQFIALKMGKET-----KLV
YITV 180 190 200 210 220 230
QLMKRLELRDLSLOPEKLOQRPLLFWHGAKDKVVPYAPTRKFYDTIKSHYSEQPERLQFI
Asp↑

yuxl.bsupep 630 640 650
RFPNASHNLSRTGHPQRQRIKRLNYISSWFDQHL
YITV 240 250
GDENADHKV-----PRAAV--LKTIE-WFETYL
His↑

FIG. 4

[illegible]

FIG. 5

FIG. 6

↑ Asp

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10 30
ttgattgtagagaaaagaagattttccgtcgccaagccagcatgtgcgt
L I V E K R R F P S P S Q H V R

50 70 90
ttgtatacgatctgctatctgtcaaatggattacgggttaaggggctt
L Y T I C Y L S N G L R V K G L

110 130
ctggctgagccggcggaaccgggacaatatgacggattttttatatattg
L A E P A E P G Q Y D G F L Y L

150 170 190
cgcgggcgggattaaaagcgtggggcatgggttcggccgggcccggattatc
R G G I K S V G M V R P G R I I

210 230
cagtttgcaccccaagggtttgtggtgtttgctcctttttacagaggc
Q F A S Q G F V V F A P F Y R G

250 270 2
aatcaaggaggagaaggcaatgaggatttttgccggagaagacagggag
N Q G G E G N E D F A G E D R E

90 310 330
gatgcattttctgcttttcgcctgcttcagcagcacccaaatgtcaag
D A F S A F R L L Q Q H P N V K

350 370
aaggatagaatccatatcttcgggtttttcccgcggcggaattatggga
K D R I H I F G F S R G G I M G

390 410 430
atgctcactgcgatcgaaatggggcgggcaggcagcttcatttgtttcc
M L T A I E M G G Q A A S F V S

450 470
tggggaggcgctcagtgatatgattcttacatacgaggagcggcaggat
W G G V S D M I L T Y E E R Q D

490 510 5
ttgcggcgaatgatgaaaagagtcacgcggcggaacaccgaaaaaggtg
L R R M M K R V I G G T P K K V

30 550 570
cctgaggaatatcaatggaggacaccgtttgaccaagtaaaaaatt
P E E Y Q W R T P F D Q V N K I

FIG. 7A

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590 610
caggctcccgtgctgttaatccatggagaaaaagacccaaaatgtttcg
Q A P V L L I H G E K D Q N V S

630 650 670
attcagcattcctattttattagaagagaagctaaaacaactgcataag
I Q H S Y L L E E K L K Q L H K

690 710
ccggtggaaacatggtactacagtacattcacacattatttcccgccca
P V E T W Y Y S T F T H Y F P P

730 750 7
aaagaaaaccggcgtatcgtgcggcagctcacacaatggatgaaaaac
K E N R R I V R Q L T Q W M K N

70
cgc
R

FIG._7B

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10 30
gtgatacaaaattgagaatcaaaccgtttccggtattccggtttttacat
V I Q I E N Q T V S G I P F L H

50 70 90
attgtaaaggaagagaacaggcaccgcgctgttcctctcgtgatcttt
I V K E E N R H R A V P L V I F

110 130
atacatgggtttttacaagcgcggaaggaacacaaccttcatattgcttat
I H G F T S A K E H N L H I A Y

150 170 190
ctgcttgccggagaagggttttagagccgttctgccggaggctttgcac
L L A E K G F R A V L P E A L H

210 230
catggggaacgggggagaagaaatggctgttgaagagctggcggggcat
H G E R G E E M A V E E L A G H

250 270 2
ttttgggatatcgtcctcaacgagattgaagagatcggcggtacttaaa
F W D I V L N E I E E I G V L K

90 310 330
aaccattttgaaaaagagggcctgatagacggcgggccgcgcgtctc
N H F E K E G L I D G G R I G L

350 370
gcaggcacgtcaatgggcggcatcacaacgcttggcgctttgactgca
A G T S M G G I T T L G A L T A

390 410 430
tatgattggataaaaagccggcgctcagcctgatgggaagcccgaattac
Y D W I K A G V S L M G S P N Y

450 470
gtggagctgttttcagcagcagattgaccatattcaatctcagggcatt
V E L F Q Q Q I D H I Q S Q G I

490 510 5
gaaatcgatgtgccggaagagaaggtacagcagctgatgaaacgtctc
E I D V P E E K V Q Q L M K R L

30 550 570
gagttgcgggatctcagccttcagccggagaaactgcaacagcgcccg
E L R D L S L Q P E K L Q Q R P

FIG. 8A

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590 610
cttttatttttggcacggcgcaaaagataaagttgtgccttacgcgccg
L L F W H G A K D K V V P Y A P

630 650 670
acccggaaattttatgacacgattaaatcccattacagcgagcagccg
T R K F Y D T I K S H Y S E Q P

690 710
gaacgcctgcaatttatcgagatgaaaacgctgaccataaagtcctc
E R L Q F I G D E N A D H K V P

730 750
cgggcagctgtgttaaaaaacgattgaatgggttgaaacgtactta
R A A V L K T I E W F E T Y L

FIG._8B

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10 30
ttgaagaaaatccttttggccattggcgcgctcgtaacagctgtcatc
L K K I L L A I G A L V T A V I

50 70 90
gcaatcggaattgtttttcacatatgattctattcatcaagaaaaa
A I G I V F S H M I L F I K K K

110 130
acggatgaagacattatcaaaagagagacagacaacggacatgatgtg
T D E D I I K R E T D N G H D V

150 170 190
tttgaatcatttgaacaaatggagaaaaccgcttttgtgataccctcc
F E S F E Q M E K T A F V I P S

210 230
gcttacgggtacgacataaaaaggataccatgtcgcaccgcatgacaca
A Y G Y D I K G Y H V A P H D T

250 270 2
ccaaataccatcatcatctgccacgggtgacgatgaatgtactgaat
P N T I I I C H G V T M N V L N

90 310 330
tctcttaagtatatgcattttatttctagatctcggctggaatgtgctc
S L K Y M H L F L D L G W N V L

350 370
atztatgaccatcgccggcatggccaaagcggcggaaagacgaccagc
I Y D H R R H G Q S G G K T T S

390 410 430
tacgggttttacgaaaaggatgatctcaataagggttgtcagcttgctc
Y G F Y E K D D L N K V V S L L

450 470
aaaaacaaaacaaatcatcgcggttgatcggaattcatgggtgagtcg
K N K T N H R G L I G I H G E S

490 510 5
atggggggccgtgaccgccctgctttatgctggtgcacactgcagcgat
M G A V T A L L Y A G A H C S D

30 550 570
ggcgctgatttttatattgcccattgtccgttcgcatgttttgatgaa
G A D F Y I A D C P F A C F D E

FIG._9A

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590 610
cagcttgcctatcggctgagagcggaatacaggctcccgtcttgcccc
Q L A Y R L R A E Y R L P S W P

630 650 670
ctgcttcctatcgccgacttctttttgaagctgaggggaggctatcgc
L L P I A D F F L K L R G G Y R

690 710
gcacgtgaagtatctccgcttgctgtcattgataaaattgaaaagccg
A R E V S P L A V I D K I E K P

730 750 7
gtcctctttattcacagtaaggatgatgactacattcctgtttcttca
V L F I H S K D D D Y I P V S S

70 790 810
accgagcggctttatgaaaagaaacgcggtccgaaagcgtgtacatt
T E R L Y E K K R G P K A L Y I

830 850
gccgagaacggtgaacacgccatgtcatataccaaaaatcggcatacgc
A E N G E H A M S Y T K N R H T

870 890 910
taccgaaaaacagtgcaggagtttttagacaacatgaatgattcaaca
Y R K T V Q E F L D N M N D S T

gaa
E

FIG._9B